

Windows 2000 Terminal Services

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Agenda

- ◆ **Terminal Services Overview**
- ◆ **Terminal Services for Windows 2000**
- ◆ **Late Additions - Post Beta 3**
- ◆ **Deployment Issues and Pointers**
- ◆ **Deployment Scenarios**

What is Terminal Server?

- ◆ **Brings latest Windows applications to more places:**
 - **Windows-based Terminals**
 - **DOS/UNIX/Macintosh*)**
 - **Legacy PCs (min. 386 w/ Win 3.11)**
- ◆ **Centralizes application management**
 - **Load once, run everywhere, instantly!**

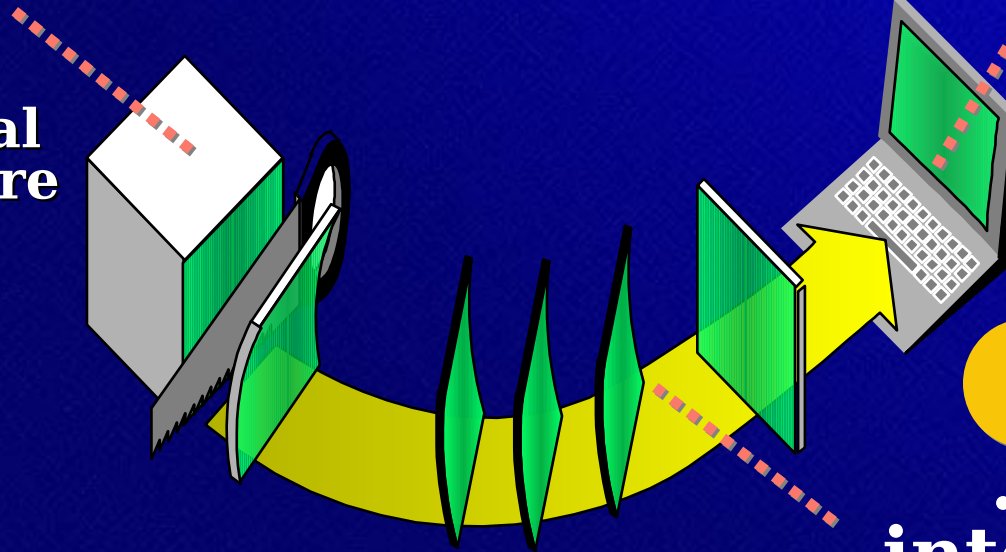
How It Works

1 Applications execute on server...

3... and user interface displays here...

Terminal Server Software

Thin Client Software or Device



2...user interface is sent over any connection

Usage Scenarios

◆ Remote Administration

- Server management across forests
- Administration from down-level clients

◆ Application Serving

- Deploying Win32 apps on Legacy PCs
- Accelerating OS upgrade deployments
- Centralized Application Management
- Tool for Win16 to Win32 Migration

New for Win2000

- ◆ **TS is an integrated OS component**
 - **Single binary kernel**
 - **Unified service packs, hot fixes**
 - **Better performance and scalability**
 - **Enabled via Setup or Add/Remove Programs**
- ◆ **Leverages Win2000 Multilingual UI feature**
- ◆ **Support for all DCOM activation modes**
- ◆ **Adjustable Scheduling**
 - **Lets TS work better with background**

Win2000 Features (2)

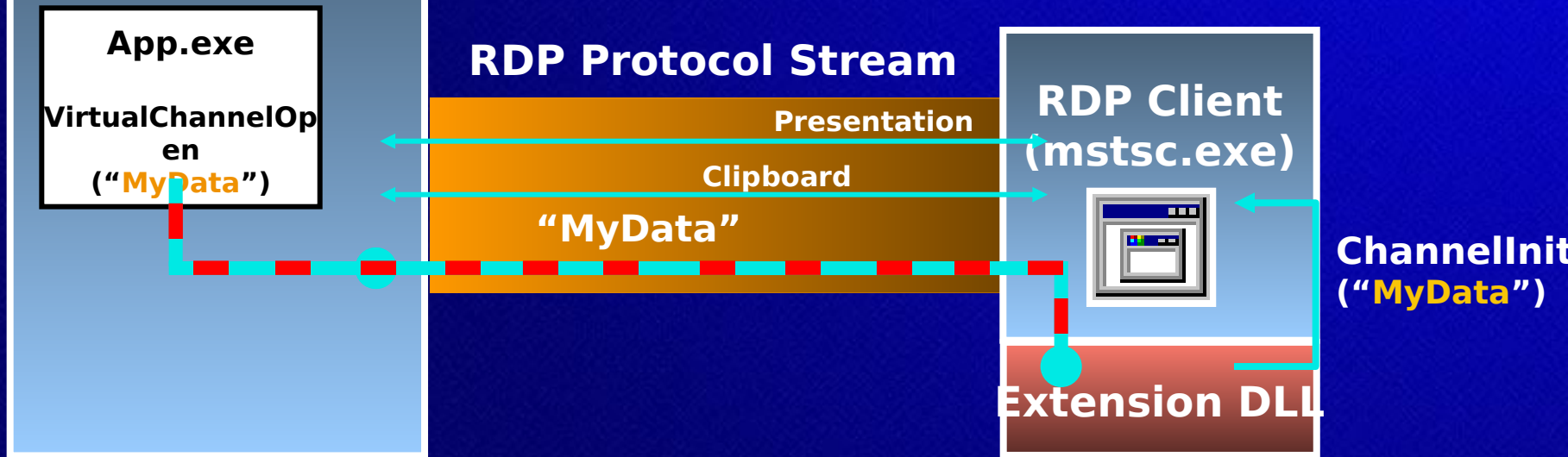
- ◆ **Printer redirection**
 - **Auto detection & install of printers**
 - **Supports printing from Windows applications**
 - **Leverages client-side spooler (if available)**
- ◆ **Session Remote Control**
 - **Administrators can shadow a client's session**
 - **Provide help or intervene from remote location**
 - **Extremely useful helpdesk feature**
- ◆ **Clipboard redirection**

Win2000 Features (3)

- ◆ **Client for HPC-Pro (WinCE) platform**
- ◆ **RDP Performance Improvements**
 - **Persistent client side bitmap caching**
 - **Further performance tuning**
(~15% bandwidth reduction from TSE4)
- ◆ **New Public APIs**
 - **TS Server Management & User Configuration**
- ◆ **Virtual channel support**
 - **Provides access to RDP data channels**
 - **Includes as part of the SDK**
 - **Can be used to add custom devices / features (audio, scanners, barcode**

Virtual Channel Architecture

Terminal Server



New Since Beta 3

- ◆ Remote Administration
- ◆ License Management
- ◆ MSI Integration
- ◆ Install Pop-Up



Remote

Administration

- ◆ **Scheduling for background services**
- ◆ **Administrator only connect security**
- ◆ **TS App Compatibility code disabled**
 - No special “install” mode required
- ◆ **No Client Licensing Requirements**
 - Two built-in per-server connections
 - No per-seat TS-CAL or NTS-CAL required
 - Client can run on any OS
- ◆ **Minimal Performance Impact**
 - ~85K non-paged, ~175K paged kernel memory
 - ~2.25Mb overall commit
 - No idle session creation

What is Terminal Services License Management?

A set of features that allow the system administrator to:

- **More accurately account for and deploy terminal services client access licenses.**
- **Ensure that all client machines accessing terminal sessions are properly licensed.**

Licensing Components

License Service

- **Runs on DC or Workgroup peer**
- **Stores & distributes CAL**
- **Can provide 90-day temp. license**
- **Provides tracking and accounting**

◆ Terminal Server

- **Ensures each client has a valid license**
- **Contacts LS only when a license is needed**

◆ Clearing House

- **Provides activation certificate to LS**
- **Issues CAL for various purchasing programs**

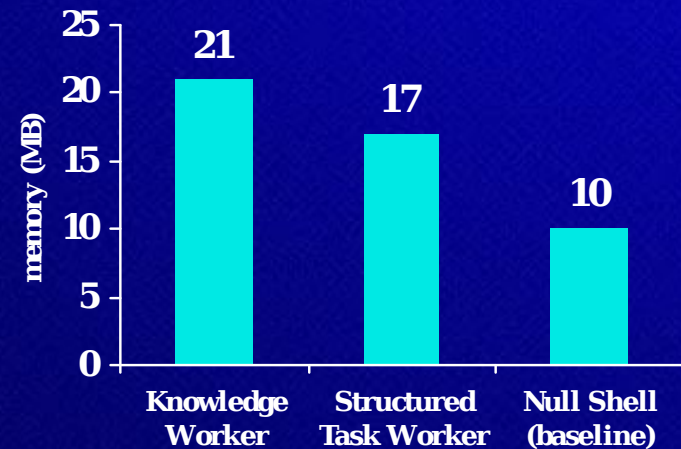
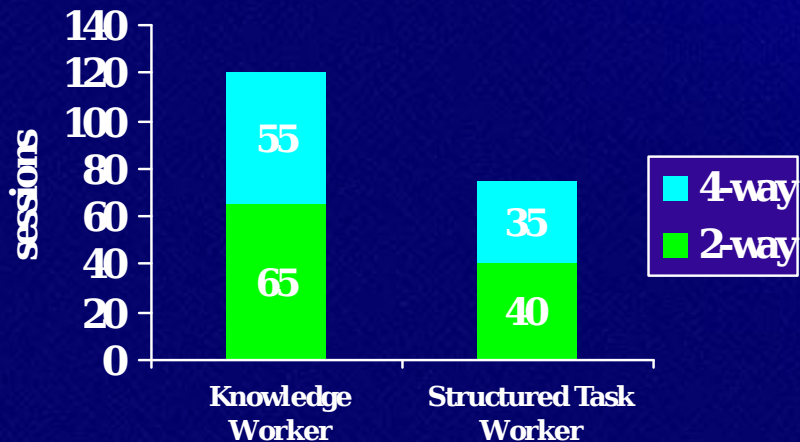
Resource Kit

- ◆ **Management Tools**
 - **Session Monitor, License Reporting**
- ◆ **Usability Tools**
 - **File Transfer, Drive Sharing**
- ◆ **Performance Tools**
 - **Client stress loading**
- ◆ **Configuration Tools**
 - **Application Security, Client Version Limiter, Client Configuration**

Win2000 TS Scalability

Results - CPU bound (standard configuration)

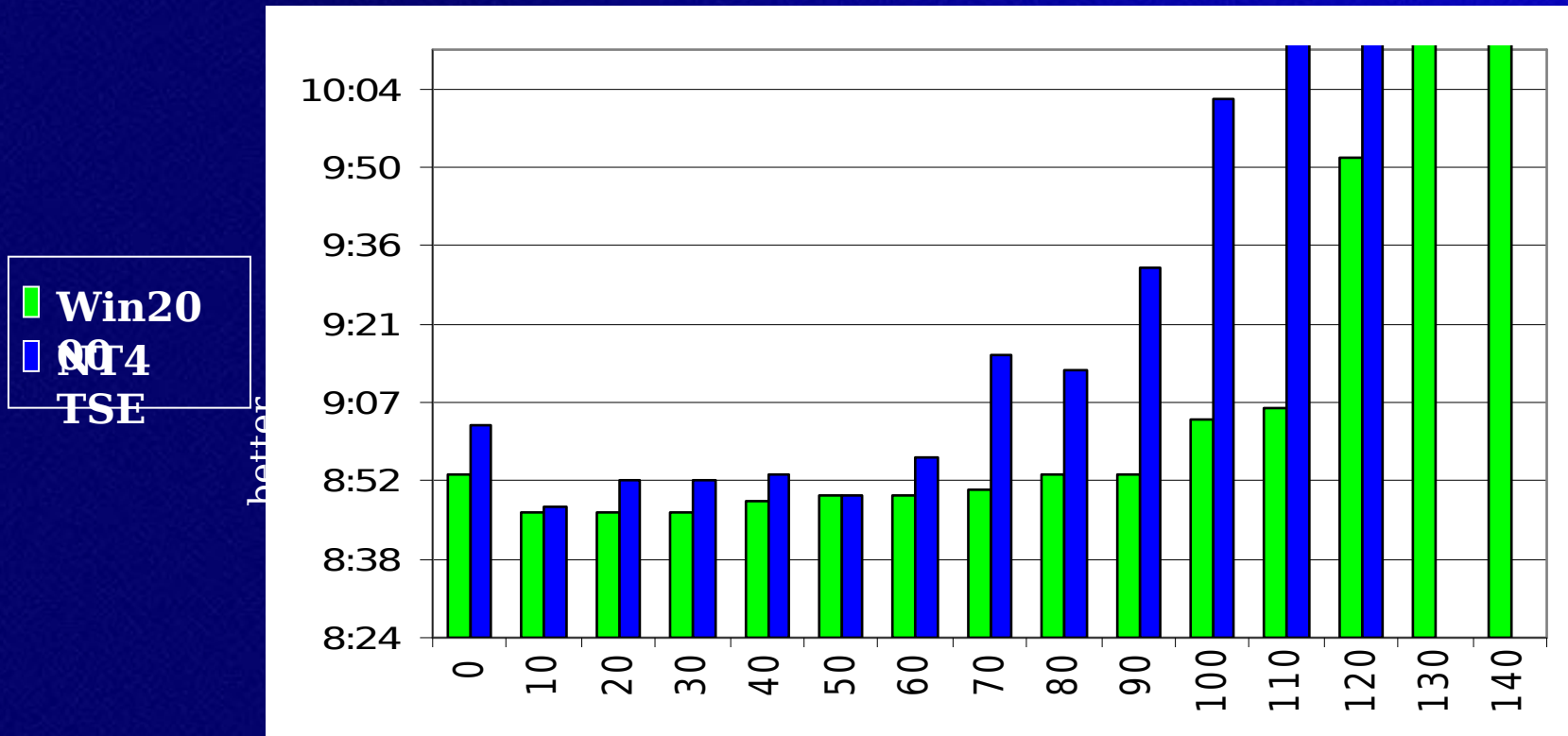
- Knowledge Worker
 - simultaneously uses and switches between Excel, PowerPoint, Word, and Internet Explorer
- Structured Task Worker
 - same suite as above, but tends to use only one app at a time



Win2000 vs. NT4 TSE

◆ Result

- Win2000 provides better performance than NT4 - TSE, especially at higher loads



Deployment Considerations

- ◆ **Usage Focus**
- ◆ **Permissions**
- ◆ **Policy**
- ◆ **Applications**

Usage

- ◆ **Remote Admin**
- ◆ **LOB Application**
- ◆ **Remote Desktop**

Permissions

- ◆ **Users must have local login permissions**
- ◆ **TS Configuration tool sets user/group access**
- ◆ **Default is access for all domain users**

Policy & Profile

- ◆ **Windows Installer may be used for per-machine Application Deployment**
- ◆ **Per user application assignment is not supported**
- ◆ **TS Settings may be overwritten by Group Policy**
- ◆ **Watch out for remove unmanaged configuration**
- ◆ **Recommendation: Separate TS OU**

Applications

- ◆ **Well behaved Win2000 aps run well**
- ◆ **Applications must be installed using Add-Remove Wizard, or install mode**
 - **Not true for Remote Administration**
 - **New Pop-Up will prevent mistakes**
- ◆ **Web page contains compatibility information and scripts**
- ◆ **Application reinstall if TS added or removed**

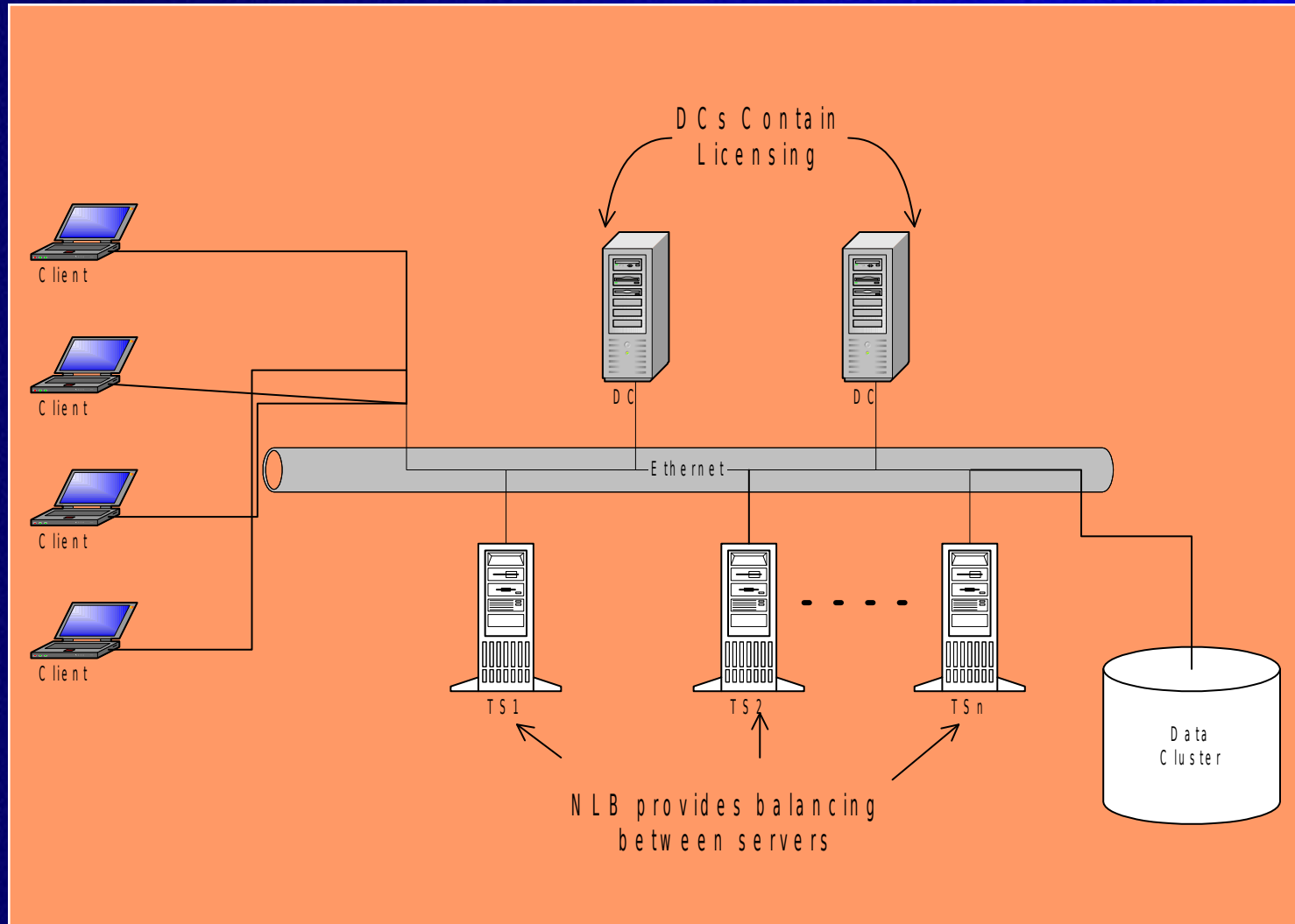
Deployment Scenarios

- ◆ **LOB Application for a large Audience**
- ◆ **Remote Desktops**
- ◆ **Remote Administration**

LOB Application

- ◆ **Focused application, such as POS or data collection**
- ◆ **Large number of users**
- ◆ **Same approach applies to a group of such applications**
- ◆ **Session state is not critical**

LOB Deployment



LOB Setup

- ◆ **Use group policy to control access**
- ◆ **Application access can be published through MSI**
- ◆ **Set Disconnect from Session on broken connection in Configuration**

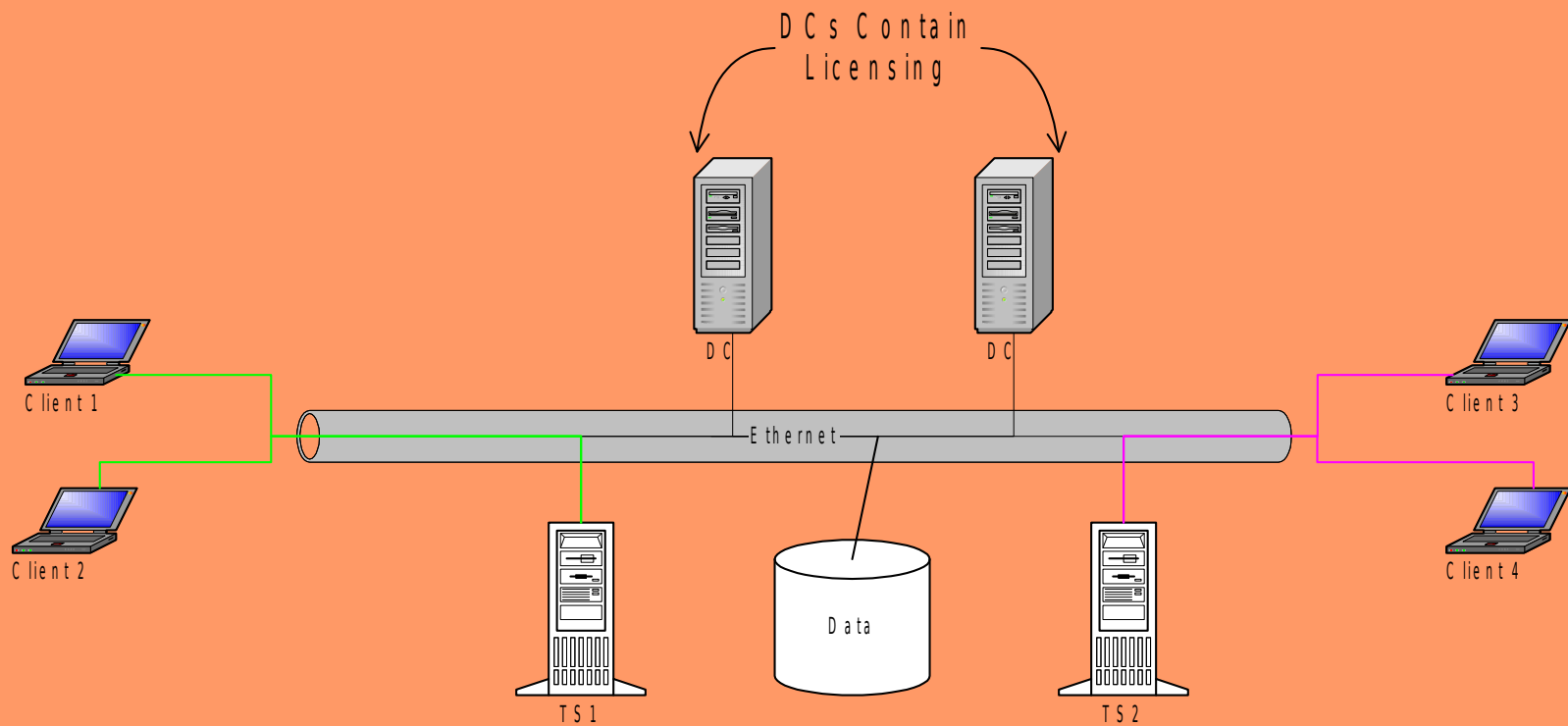
NLB and TS

- ◆ Useful for large deployments
- ◆ IP oriented, Not session oriented
 - Useful in stateless environments
 - Useful for dropped sessions
 - Can support disconnected with sessions fixed IP
- ◆ True session LB requires add-on

Remote Desktop Application

- ◆ **Provide full desktop, varied application support**
- ◆ **Down-level client, roaming users, etc.**
- ◆ **Session state matters**

Remote Desktop Deployment



Remote Desktops Setup

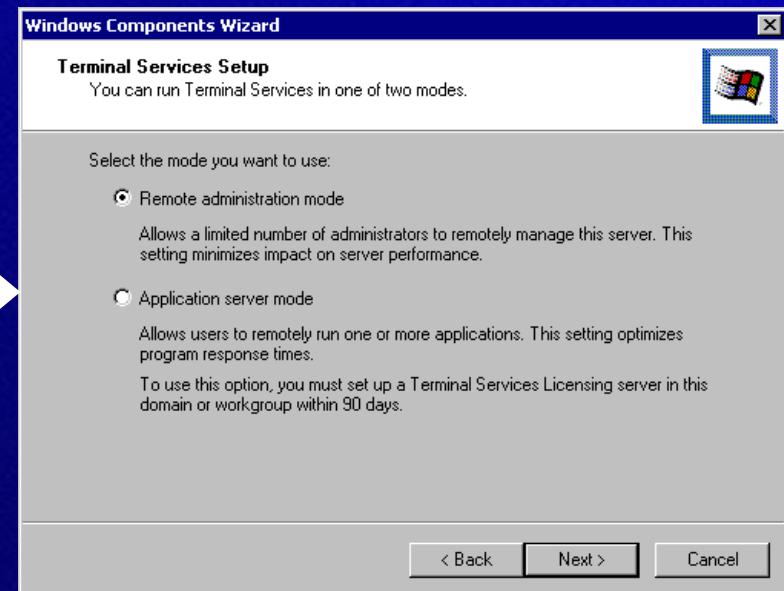
- ◆ **Group policy and roaming profiles apply**
- ◆ **Application access can be published through MSI**
- ◆ **Can use load balancing in some instances**

Remote Admin Deployment



**Select TS
Windows
Component**

**Select Remote
Admin Mode**



For More Information

- ◆ Website at <http://www.microsoft.com/ntserver/terminalserver/default.asp>
- ◆ Performance metrics underway through NEC third party testing
- ◆ Win2000 updates to white papers underway
- ◆ Walkthrough available soon

Where do you want to go **today?**

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